

Claims

1        1. An ignition actuation mechanism for a lighter for generating  
2 discharge voltage that causes a spark of electrical current between  
3 ignition electrodes to ignite fuel gas when an actuation member is  
4 pressed including:

5            a first elastic member positioned to resist actuation movement  
6 of the actuation member having:

7            a first spring rate; and

8            a second elastic member positioned in parallel with said first  
9 elastic member to resist actuation movement of the actuation member  
10 having:

11           a second spring rate higher than said first spring rate, said  
12 second elastic member being positioned for engagement to resist  
13 actuation movement of the actuation member only after more than half  
14 of the actuation movement of said first elastic member, whereby the  
15 effective spring rate to resist pressing movement of the actuation  
16 member sharply increases during the ignition actuation.

1        2. The ignition actuation mechanism as defined in claim 1 including:  
2           a piezoelectric mechanism for generating the discharge voltage  
3 having:

4           an actuation end; and

5           the actuation member, said actuation member being slidably mounted  
6 to operate said actuation end.

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1        3. The ignition actuation mechanism as defined in claim 1 wherein  
2        said second elastic member engages to resist actuation movement of  
3        the actuation member when 40% to 10% of the actuation movement remains.

1        4. The ignition actuation mechanism as defined in claim 3 wherein  
2        the maximum force to resist the actuation operation caused by the  
3        combined first and second spring rates is 30N to 50N.

1        5. The ignition actuation mechanism as defined in claim 2 wherein  
2        said second elastic member engages to resist actuation movement of  
3        the actuation member when 40% to 10% of the actuation movement remains.

1        6. The ignition actuation mechanism as defined in claim 5 wherein  
2        the maximum force to resist the actuation operation caused by the  
3        combined first and second spring rates is 30N to 50N.

4

5        7. The ignition actuation mechanism as defined in claim 2 wherein  
6        said second elastic member includes:  
7        torsion plates integrally formed with said actuation member.

1        8. The ighition actuation mechanism as defined in claim 7 wherein  
2        said second elastic member includes:  
3        torsion plates acting on said actuation member.

1        9. The ignition actuation mechanism as defined in claim 6 wherein  
2        said actuation member and said torsion plates are integrally molded  
3        from polyacetal resin.